

Simplifying Algebraic Expressions

Vocabulary:

Like Terms - more than one term or terms that have the same variables and powers. The coefficients do not matter. $3x + 5x$

Unlike Terms - two or more terms that are not *like* terms, i.e. they do not have the variables or powers. $3x + 5y + x^2$

Factored Form - an expression is in factored form if it is written as the product of its factors $6(x + 2)$

1. To add or subtract, you <i>must have</i> like terms.	Additional Examples:
Example: $2z + 4z + 3z = 9z$ Example: $5r - 2r = 3r$	$\boxed{3t} + \boxed{6r} - \boxed{8t} + \boxed{5r}$ $11r - 5t$
2. To multiply or divide, you <i>don't need</i> like terms.	Additional Examples:
Examples: $5(2z) = 10z$ $12(3a) = 36a$ $15t \div 3 = 5t$	$4(6x + 2t) + 5x$ Dist $24x + 8t + 5x$ $24x + 5x + 8t$ Comm. Add $29x + 8t$
3. As always, follow the Order of Operations. Use Math Properties to work your way through Order of Operations.	Notes: When have terms with variables and constants, write the constant last
Ex. Simplify: $4(x + 2) + 5(x + 3)$ 1. Distribute: $4x + 8 + 5x + 15$ 2. Commutative of Addition: $4x + 5x + 8 + 15$ 3. Combine Like Terms: $9x + 23$ 4. Therefore: $4(x + 2) + 5(x + 3) = 9x + 23$	You try: Simplify: $3(x + y) + 7(2x + 3y)$ $\boxed{3x} + \boxed{3y} + \boxed{14x} + 21y$ Dist $3x + 14x + 3y + 21y$ Comm. Add $17x + 24y$

Simplify with a partner:

1. $(t + 5) + 4(t - 1)$

2. $5x + 10 \div 2 + 3(x - 1)$

3. $12r \div 2 + 3s + 2(2) + 4(s + y)$

$2r + 7s + 4y + 7$

4. $3x + 3x^2 - x + 2x$

Decide if each expression is equivalent. If they are not, then rewrite an equivalent expression.

1) $y + y + y = 3y$

2) $2x + 4y + z = z + y + x + y + y + x + y$

3) $(m)(n) = m + n$

4) $4a = a \bullet a \bullet a \bullet a$

5) $5y + 8 = y + y + y + 8 + y$

6) $2t + 3t = t + t + t + t + t$